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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,988	04/01/2004	Robert L. Heimann	EL023RH-1 CON	2018

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EXAMINER	
MICHENER, JENNIFER KOLB	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/816,988	HEIMANN ET AL.	
	Examiner	Art Unit	
	Jennifer K. Michener	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/9/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The objection to the disclosure is withdrawn based on Applicant's amendments.

Claim Objections

2. The objection to claim 12 is withdrawn based on Applicant's amendments.

Claim Rejections - 35 USC § 112

3. The rejection of claims 7, 10, 11, and 14 under 35 U.S.C. 112, second paragraph, has been withdrawn based on Applicant's amendments.

The following new 112 rejections is made:

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The newly-added limitations "at least about

120C" is broader than the range specified by the specification of 120-150C. The phrase "at least about 120C" allows for an infinitely high temperature.

Double Patenting

6. The rejection of claims 1-19 under the judicially created doctrine of obviousness-type double patenting has been withdrawn based on Applicant's submission of a terminal disclaimer.

Claim Rejections - 35 USC § 102

7. Claims 1-2, 4-12, 15-16, and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Maurer et al. (US 3,444,007).

Examiner maintains the rejection of the previous office action.

8. The rejection of claims 1, 3-4, 11-12, 19 under 35 U.S.C. 102(b) as being anticipated by Hanagata et al. (US 5,057,335) has been withdrawn in favor of these claims being incorporated into the 103 rejection, below.

9. The rejection of claims 1-2, 4-7, 11-15, and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Heimann et al. (US 6,592,738) has been withdrawn based on Applicant's 1.132 Declaration.

The following new rejection is made:

10. Claims 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakatsugawa (4,386,139).

Nakatsugawa teaches treating an electrically conductive copper surface by preparing a medium having a basic pH comprising water, sodium hydroxide, and ammonium metavanadate and contacting the surface with the medium (col. 1, line 5; col. 2, lines 35-36; col. 3, line 62; col. 4, line 17 and line 37). Electrocoating is taught by Nakatsugawa, which requires application of a current. Cathodic electrodeposition is inherently used by Nakatsugawa based on the copper substrate, the use of the substrate as a cathode in other electrodeposition steps of Nakatsugawa, and because Nakatsugawa uses the same materials of Applicant and therefore must configure the bath in the same manner as Applicant.

Claim Rejections - 35 USC § 103

11. Claim 13, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer et al.

Examiner maintains the rejection of claims 13 and 17 for the reasons outlined in the previous office action. Examiner includes claim 21 into this rejection for the same reasons as outlined for claim 17 of the previous office action.

12. Claims 1, 3-5, 8-13, 15, 17, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanagata et al.

Examiner maintains the rejection of claims 5, 8-10, 13, 15, and 17, as outlined in the previous office action and, again, below. Claims 1, 3-4, 11-12, and 19 have been added to this rejection, as necessitated by amendment. Claim 21 has been added to this rejection for the same reasons as outlined for claim 17. Claim 14 has been withdrawn from this rejection.

Hanagata et al. teaches a method of treating a metal substrate, wherein the aqueous treatment composition includes a stannate, molybdate, or vanadate and colloidal silica, and has an alkaline pH of preferably 10-14 (col. 2, lines 19-56). Hanagata et al. teaches that the composition is used for treating stainless steel, copper, iron, or aluminum surfaces.

Regarding the newly-added limitation requiring drying the substrate, Examiner notes that the aqueous solution is inherently dried from the substrate to provide the desired, dried coating on the substrate suitable for use. Water will inherently evaporate. Selection of a temperature at which to evaporate water would have been within the skill of an ordinary artisan depending on the sensitivity of the substrate and coating thereon to temperature and depending on the speed with which the artisan desires to achieve the finished, dried product. Evaporation rates of water are well-known to be dependent on temperature.

It is well settled that determination of optimum values of cause effective variables such as temperature is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

As to claims 5 and 15, it is the Examiner's position that contacting the coating with a laser will necessarily dry the coating in a *first* drying step. Hanagata et al. teaches that the temperature of the substrate is increased due to the laser, and the laser may be operated at 2-100 C. It is the Examiner's position that a laser operated at 100 C for a period of time would cause the substrate's temperature to raise to a temperature even greater than 100 C.

As to claims 8-10, 17, and 21, Hanagata et al. does not disclose the particular metal compounds claimed; Hanagata et al. merely teaches the use of stannates, molybdates, and vanadates in general. It would have been obvious for one skilled in the art to have supplied stannate, molybdate, or vanadate compounds in a commercially-available stable chemical form, such as the claimed compounds, in the absence of a teaching of particular compounds to be used.

As to claim 13, Hanagata et al. teaches that the compounds may be present in an amount of 0.1-90 wt%, or preferably 3-25 wt %. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Hanagata et al.'s amount range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974).

13. The rejection of claim 9-10 and 17 under 35 U.S.C. 103(a) as being unpatentable over Heimann et al. has been withdrawn based on Applicant's submission of a terminal disclaimer.

The following new rejection has been applied:

14. Claims 10, 14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanagata et al. in view of Nakatsugawa.

Hanagata et al. teach that which is disclosed above, namely coating a copper substrate with vanadate salts in aqueous solution. Hanagata fails to teach a specific vanadate salt coated in an electrodeposition tank.

Nakatsugawa teaches that which is disclosed above, namely, coating a copper substrate with ammonium metavanadate by electrodeposition in aqueous solution.

It would have been obvious to one of ordinary skill in the art to use the teachings of Nakatsugawa in the method of Hanagata to provide Hanagata with an appropriate specific vanadate salt suitable for coating copper. Nakatsugawa would have reasonably suggested the use of ammonium metavanadate as the vanadate salt of Hangata with the expectation of successful results since both methods teach the coating of copper in aqueous vanadate salt solutions. Additionally, Nakatsugawa would have reasonably suggested the use of current in the aqueous immersion tank of Hanagata as a suitable method of deposition of the same salt onto the same substrate.

Response to Arguments

15. Applicant's arguments filed 2/9/2005 have been fully considered but they are not persuasive.

Applicant argues that Maurer employs a process that includes chromates in a chromate rinse step whereas the instant claim requires a process substantially free of chromates.

Examiner notes that the claim requires a process of preparing a medium, contacting a surface to the medium, removing, and drying, wherein the claimed process is free of chromates. The process steps, as claimed, are met by Maurer in that Maurer does not use chromates in the claimed method steps of preparing, contacting, removing, and drying.

Applicant's argument regarding the drying step of Hanagata has been addressed in the 103 rejection.

Applicant argues that Maurer teaches that there is no particular advantage of using larger quantities of metal ions and therefore there is no reason to try such amounts. Examiner disagrees.

Maurer et al. teaches that "Good results have also been obtained from high concentration of the metal ion or ions" (col. 2, line 70 to col. 3, line 5) and, as outlined previously, an ordinary artisan would have determined the optimum metal ion concentration through routine experimentation in the absence of a showing of criticality. Furthermore, Maurer's statement that good, non-detrimental results are obtained with higher concentrations provides a teaching that, in fact, higher concentrations have been used.

Applicant argues that it would have been just as reasonable to select compounds unrelated to claims 8-10 and 17.

Examiner agrees. For the reasons outlined in the previous office action, in the absence of a showing of criticality, it would have been reasonable to select the compounds of claims 8-10, 17, and 21.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. December, Emch, and Kollah et al. teach that it is well-known in the art to electrodeposit metals onto cathodic metal surfaces. Okai et al. teach a corrosion preventative pigment containing a vanadate ion in water with an alkaline pH. Hazan et al. teach electrodeposition as a conventional in coating steel panels and teaches the use of tin in aqueous solution with NaOH and the use of molybdate compounds as corrosion inhibitors in such a bath.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer K. Michener whose telephone number is (571) 272-1424. The examiner can normally be reached on Tuesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JENNIFER MICHENER
PRIMARY EXAMINER

AU 1762
May 1, 2005